

A new Scelionid wasp from the intertidal zone of South Africa (Hymenoptera: Scelionidae)

by

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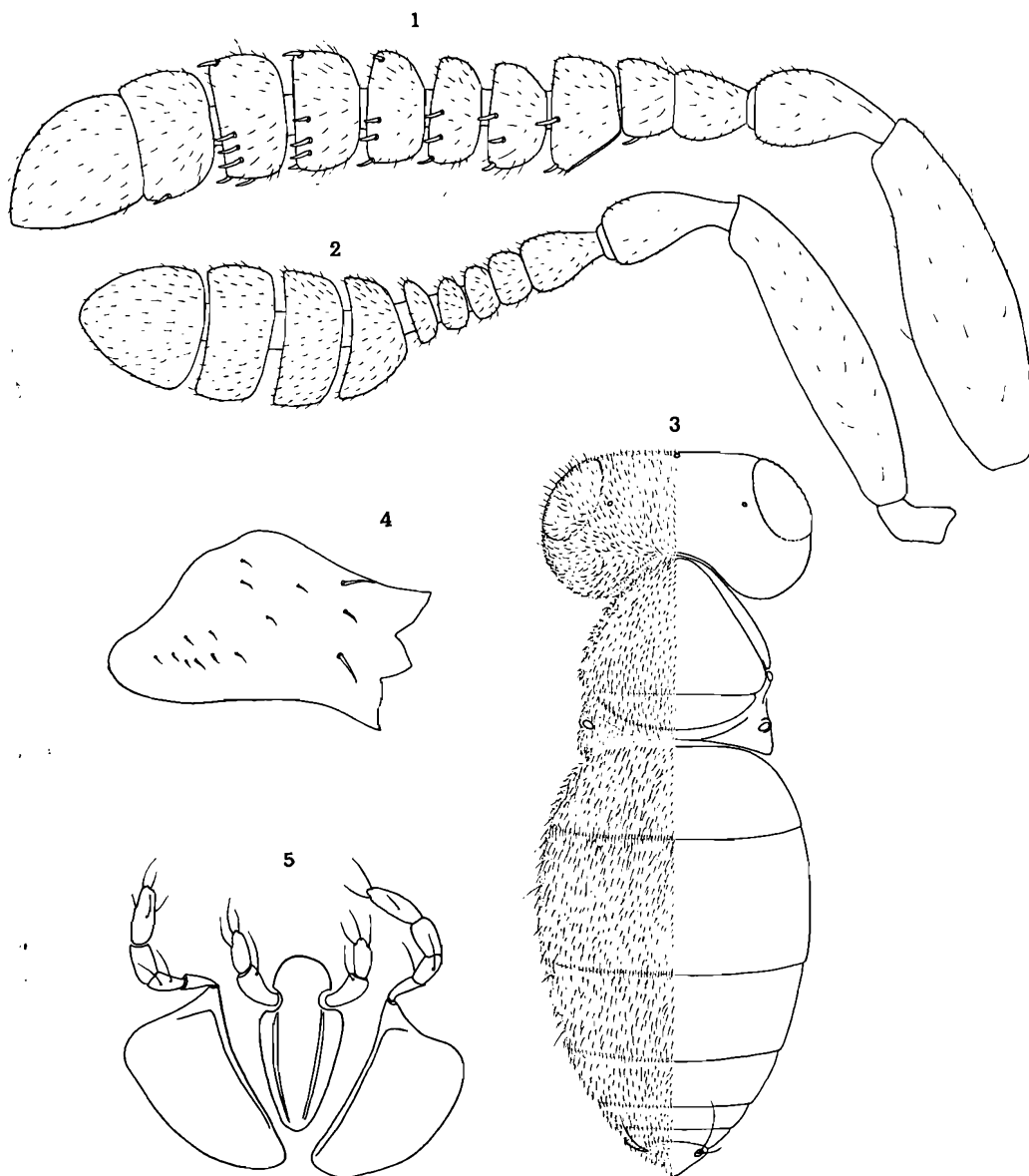
SYNOPSIS

Echthrodesis lamorali n.gen., n.sp. (Scelionidae, Scelioninae) is described and figured. This species parasitises the eggs of *Desis formidabilis* (Camb.) (Araneae, Amaurobiidae) in the intertidal zone of the South African coastline.

The numerous species of Scelionidae are known to develop in eggs of various arthropods, but only a fragment of this high number is confined to spiders as the hosts. Four Scelionid genera viz. *Baeus* Hal., *Aneurobaeus* Kieff., *Paraneurobaeus* Risb. and *Idris* Först. are true egg parasites of various terrestrial spiders. Three other related genera, the bionomics of which are unknown, are also supposed to have their potential hosts among spiders. All the genera mentioned above are usually assigned to the subfamily Baeinae, a group with vague taxonomic limits.

In the course of his observations on the biology of spiders inhabiting the intertidal zone of the South African coastline, Mr. Bruno Lamoral (Natal Museum, Pietermaritzburg) discovered a Scelionid wasp parasitising the eggs of *Desis formidabilis* (Camb.) (Amaurobiidae). Close examination of the parasite revealed it to belong to a new genus and species, thus giving the very first evidence of an intertidal maritime Scelionid ever known. The wasps were observed in and around the spiders' nests which are always well within the intertidal zone, i.e. never above the tidal level. Thus the wasp has to survive a relatively long period under water between the tides. Consequently, a special adaptation of the respiratory system is necessary for both the host and its parasite. Mr. Lamoral observed the spider to make use of a physical gill when submerged; the dense pilosity of the parasite's body would suggest an identical mode of respiration by forming a continuous thin plastron of an air bubble that supplies the wasp with oxygen during submersion. The wasp seems to be monophagous upon its host since no parasitising of eggs of three other species of spiders in the same niche has been observed. *Desis formidabilis* is commonly found inhabiting the intertidal zone of rocky shores on both the western and eastern coastline of South Africa.

Thanks are due to Mr. Lamoral for sending me this valuable material for study. All types are deposited in the Natal Museum (Pietermaritzburg) but two paratypes in collection L. Masner (Praha).



Echthrodesis lamorali n.gen., n.sp.

- Fig. 1—male antenna (allotype), drawn from slide.
 Fig. 2—female antenna (paratype) drawn from slide.
 Fig. 3—female holotype.
 Fig. 4—female mandible (paratype) drawn from slide.
 Fig. 5—female mouth parts (paratype) drawn from slide.

Scelionidae, Scelioninae

Echthrodesis gen.n.

(♀♂) Head, thorax dorsally and gaster clothed with extremely dense silvery hairs to such an extent that some sutures and most of sculpture may be observed only with difficulty (dissection necessary).

Head semiglobose, transverse when seen from above, wider than thorax; eyes relatively small, as wide as temples or genae, densely hairy; ocelli very minute and somewhat inconspicuous, the lateral ones close to inner orbit yet distant from it by more than their own diameter; genal sulcus well developed; mandibles powerful, with three large teeth; maxillary palpi 4-segmented, labial 2-segmented; female antenna 11-segmented with abrupt 4-segmented club, male antenna 12-segmented, 5th segment with fine longitudinal keel.

Thorax generally reduced due to apterism, almost flat above; prothorax visible in dorsal aspect; mesoscutum almost triangular, with no parapsidal furrows; scutellum very narrow, almost concealing the reduced metanotum; tegulae and wings vestigial and hardly conspicuous in female, in male tegulae diminished and wings stump-like and not extending beyond the propodeum; pleurae completely bare, sutures simplified and well indicated; single suture running from tegula to front coxa; propodeum very narrow, protruded laterally in blade-like edge right above the hind coxa; legs short and stout; tarsi 5-segmented; tibial spurs 1, 1, 1; coxae very strong, trochanters 2-segmented.

Gaster ovoid, broadly sessile, longer than wide, composed of seven tergites and six sternites in female (dissection!) and seven tergites and seven sternites in male; first three tergites the largest, second longest of all, first longer than third; sixth tergite very narrow and not well visible unless extirped; seventh tergite broadly triangular with two oval (?) spiracles bearing each a pair of long bristles; tergopleurites rather narrow yet forming a distinct submarginal impressed ridge, sternopleurites well developed and sclerotised.

Type species: *Echthrodesis lamorali*, new species (described below).

This new genus of Scelioninae falls in the group of genera characterized by 11-segmented female antennae. It comes close to *Embidobia* Ashm. (= *Efflatounina* Priesn.)*, *Mirobaeus* Dodd and *Mirobaeoides* Dodd, yet differs strikingly from all of them in the remarkable pilosity of its body; from *Mirobaeus* and *Mirobaeoides* more by long second tergite and hairy eyes, from *Embidobia* by palpi and different structure of gaster. These four genera are, no doubt, closely related to each other although in host selection *Embidobia* (eggs of Embioptera) is quite unlike *Echthrodesis* (eggs of spiders). Problematic only are the evolutionary ties of *Echthrodesis* towards the genera classified generally in subfamily Baeinae. Among them only *Parabaeus* Kieff. seems to resemble *Echthrodesis* in the structure of the antenna, but differs in other characters. In host selection, however, *Echthrodesis* matches the type of Baeinae, yet in behaviour and choice of its ecological niche it is quite peculiar among all genera of Scelionidae.

It should be noticed that the subfamily Baeinae, as proposed by most authors, is not considered here an independent group and is treated within the subfamily Scelioninae.

* Cf. the emended generic diagnose and redescription by Masner (1964).

***Echthrodesis lamorali*, new species**

(Figs. 1 - 5)

Holotype female Cat. No. 1168 (Natal Museum, Pietermaritzburg), well preserved and mounted on point.

Length — 1.5 mm. approx.; antennae, mandibles and legs pitch brown, tarsi and tibiae almost yellow, pleurae and ventral side of gaster chestnut brown, head and dorsal part of body dark brown to black (removed from alcohol); dense silvery pilosity covers most of the body, the dorsal part in particular. Head transverse (28:19), wider than thorax (28:23) densely hairy and very finely scaly-reticulate all over except for little bare field around the short keel above antennal insertion; cheeks with fan of fine striation; vertex running obtuse angled on occiput; antennae (fig. 2).

Thorax quite flat dorsally, hairy and sculptured like head; prothorax densely hairy dorsally but bare at sides; mesoscutum wider than long (16:22), scutellum strongly transverse, very narrow (3:20); mesopleura bare, shining, with longitudinal shallow impression; metapleura bare and shining; hind corners of propodeum prominent, spiracles well visible.

Gaster elongated (50:30), densely hairy and of same sculpture as head and thorax yet the reticulation even more distinct, particularly in first three segments; first tergite transverse (11:28), second the longest (15:30), third shorter (10:28), tergites 4 - 6 progressively shortened, seventh tergite in form of a triangular plate bearing two pairs of long upcurved bristles.

Allotype male Cat. No. 1169 (along with holotype, well preserved, on point, right antenna on slide).

Differs from female in antenna (fig. 1) and wings which are stump-like but not extending beyond the hind margin of propodeum.

Locality: "The Island", Kommetjie, Cape Peninsula, April, 1966, B. Lamoral collector (found in intertidal zone).

Bionomics: from eggs of *Desis formidabilis* (Camb). (Araneae, Amaurobiidae).

Material examined: Holotype (female), allotype (male) and ten paratypes (females), all with above data; one paratype tagmounted on slide.

Variability: body length ranging from 1.1 to 1.5 mm.

REFERENCE

- MASNER L., 1964: A comparison of some Nearctic and Palearctic genera of Proctotrupoidea (Hymenoptera) with revisional notes.—*Acta Soc. ent. Cechosl.*, 61 (2): 123-155.

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